

MULTIMEDIA OUTLET WITH PROTECTIVE COVER

Field of the Invention

The present invention relates to covers for use on multimedia outlets or
5 other telecommunication outlets.

Background of the Invention

Multimedia outlets typically include a variety of cable connectors or
jacks mounted in an outlet box for receiving cables carrying telecommunications
signals. The connectors and jacks might include video, computer, or telephone data
10 connectors such as coaxial cable connectors, twisted pair connectors, or fiber optic
connectors. Because the connectors are used for different applications, there is a need
for a connector designation system for distinguishing each connector in a multimedia
outlet.

In addition, the connectors may be mounted into outlet boxes using snap-
15 fit connector modules. Although snap-fit connector modules allow for easy assembly, it
is desirable to prevent the modules from being removed from the multimedia outlet too
easily. Therefore, there is a need to retain the various assemblies preventing the
modules from being removed from the multimedia outlet.

Summary of the Invention

20 One aspect of the present invention relates to a cover assembly for
covering an outlet box. The assembly includes a cover plate and an insert piece having
a middle member and two retention members. The cover plate defines a cover aperture
which receives the middle member of the insert piece. The retention members of the
insert piece abut a back surface of the cover plate. The insert piece may define a
25 connector aperture for receiving a cable connector.

Another aspect of the present invention relates to incorporating
designation figures on the insert piece as described above. The insert piece may also
include tabs extending from a rear surface of the insert piece.

A further aspect of the present invention relates to a strap for use with the assembly described above. The strap defines mounting apertures for receiving snap-fit connector modules. The strap may define shelves along two opposed sides for receiving the retention members of an insert piece. The strap may also define tab slots for receiving the tabs of the insert piece.

Brief Description of the Drawings

FIG. 1 is an exploded perspective view of an assembly according to the present invention with an outlet box.

FIG. 2 is a partially exploded perspective view of the assembly of FIG. 1 with the strap coupled to the outlet box.

FIG. 3 is a partially exploded perspective view of the assembly of FIG. 1 with the insert pieces mounted in the strap.

FIG. 4 is a front perspective view of the assembly of FIG. 1.

FIG. 5 is a rear perspective view of the assembly of FIG. 1.

FIG. 6 is a front perspective view of an assembly according to the present invention with connector modules mounted in the strap.

FIG. 7 is a rear perspective view of the assembly of FIG. 6.

FIG. 8 is a front perspective view of a strap according to the present invention.

FIG. 9 is a rear perspective view of the strap of FIG. 8.

FIG. 10 is a front view of the strap of FIG. 8.

FIG. 11 is a rear view of the strap of FIG. 8.

FIG. 12 is a side view of the strap of FIG. 8.

FIG. 13 is a front perspective view of a blank insert piece according to the present invention.

FIG. 14 is a rear perspective view of the insert piece of FIG. 13.

FIG. 15 is a front view of the insert piece of FIG. 13.

FIG. 16 is rear view of the insert piece of FIG. 13.

FIG. 17 is a top view of the insert piece of FIG. 13.

FIG. 18 is a side view of the insert piece of FIG. 13.

FIG. 19 is a front view of the insert of FIG. 13.

FIG. 20 is a front view of an example of a computer data insert piece according to the present invention.

5 FIG. 21 is a front view of a telephone or voice insert piece according to the present invention.

FIG. 22 is a front view of a video IN insert piece according to the present invention.

10 FIG. 23 is a front view of a video OUT insert piece according to the present invention.

FIG. 24 is a front view of an RCA insert piece according to the present invention.

FIG. 25 is a front view of an S-video insert piece according to the present invention.

15 FIG. 26 is a front view of a fiber ST insert piece according to the present invention.

FIG. 27 is a front view of a fiber SC insert piece according to the present invention.

20 FIG. 28 is a front perspective view of the insert of FIG. 20.

FIG. 29 is a rear perspective view of the insert of FIG. 20.

FIG. 30 is a front perspective view of the insert of FIG. 22.

FIG. 31 is a rear perspective view of the insert of FIG. 22.

FIG. 32 is a front perspective view of the insert of FIG. 27.

FIG. 33 is a rear perspective view of the insert of FIG. 27.

25 FIG. 34 is a partial cross sectional front perspective view of the assembly of FIG. 6 along line A-A.

FIG. 35 is a rear perspective view of the assembly of FIG. 34.

FIG. 36 is a cutaway perspective view of an assembly according to the present invention.

Detailed Description of the Preferred Embodiments

FIGS. 1-5 show a cover assembly 10 according to the present invention with an outlet box 20. The assembly 10 includes a cover plate 30, insert pieces 40, 41, and 42, and a strap 50. Strap 50 is configured to span an open end 55 of the outlet box 20. The strap 50 defines mounting apertures 53 for receiving connector modules 60 and 62. Connector modules 60 and 62 include cable connectors 56 or jacks 57. Insert pieces 40, 41, and 42 fit within a cover aperture 68 defined by the cover plate 30. The cover plate 30 holds the insert pieces against the strap 50. The insert pieces 40, 41, and 42 define connector apertures 40', 41', and 42' for receiving connectors 56 mounted in the connector modules 60 or for receiving a connector into the jack 57 in connector module 62.

FIGS. 6 and 7 show assembly 10 with the outlet box removed. The connector modules 60 and 62 are snap-fit modules which include flexible push tabs 64 having a ramped lip 64'. Modules 60 and 62 may be inserted and removed from a front side of the strap 50 by depressing the push tabs 64. Screws 70 couple the strap 50 to the cover plate 30 through fastener holes 72 and 74 defined by the cover plate and the strap 50.

The insert pieces 40-42 overlap at least a portion of corresponding mounting apertures 53 in the strap 50. The insert pieces 40-42 prevent modules 60 and 62 from being removed from the strap 50 without first removing the cover plate 30 and insert pieces. Furthermore, the insert pieces themselves cannot be removed unless the cover plate 30 is first removed from the assembly 10.

FIGS. 8-12 illustrate a strap 50 according to the present invention. The strap 50 defines a plurality of mounting apertures 53 for mounting connector modules 60 to the outlet box 20. The strap 50 has a front surface 80, a back surface 82, and an outside edge 81 which includes two sides 83 and 84. The outside edge 81 is recessed from the front surface 80, thereby forming a lip 85 around the outside edge of the strap 50. The front surface 80 of the strap 50 fits within the cover aperture 68 from a back side 33 of the cover plate 30 so that the lip 85 of the strap 50 abuts the back side 33 of the cover plate 30.

As shown in FIG. 8, sides 83 and 84 of the strap 50 define recessed shelves 90. The shelves 90 are shaped to receive side retention members 100 of the insert pieces 40-42. Strap 50 may also define tab slots 92 in the front surface 80 for receiving tabs 102 of the insert pieces.

5 The strap 50 defines fastener holes 74 for securing the strap 50 to the cover plate 30. The strap 50 also defines fastener holes 76 for securing the strap 50 to an outlet box 20.

FIGS. 13-18 show a blank insert piece 110 according to the present invention. Each insert piece in the assembly 10 corresponds to one or more mounting
10 apertures 53 in the strap 50. The insert pieces cover the mounting apertures 53 and the connector modules 60 received in the mounting apertures 53 so that the modules 60 cannot be removed without first removing the insert pieces. Blank insert piece 110 may be used as a dust cap to cover an unused jack to prevent dust or other foreign material from entering the jack or may be used to cover an empty mounting aperture.

15 Other embodiments of insert pieces according to the present invention, as shown in FIGS. 20-33, include connector apertures for receiving a cable connector mounted in a mounting aperture 53 of the strap 50 to pass through the insert member or for allowing a connector on an end of a cable to be received by a jack under the insert piece. The connector apertures may be sized and shaped to correspond to various types
20 of connectors or jacks. For example FIGS. 20 and 21 show insert pieces 40 and 125 having a twisted pair plug aperture 126. FIGS. 22 and 23 show insert pieces 41 and 42 having a video connector aperture 124. FIG. 24 shows an insert piece 128 having an RCA connector aperture 129. FIGS. 25-27 show insert pieces 130-132 having other variously shaped connector apertures 133-135. Other shapes can be used as desired for
25 different connector styles.

 The insert pieces may also include designation figures which identify the different applications using a connector or jack in the corresponding mounting aperture 53. For example, the insert piece 40 shown in FIGS. 20 and 28 shows a computer figure 47 which may be used to designate that insert piece 40 corresponds to a computer
30 data jack or port. Similarly, insert pieces 125, 41 and 42 include designation figures

140, 141, and 142 indicating telephone, video IN, and video OUT connectors or jacks respectively. The insert pieces may also be color coded in order to differentiate between connector and jack types.

Referring now to FIGS. 13-18, an insert piece according to the present invention such as insert piece 110 includes a middle member 112 having front and rear surfaces 205 and 206. In the illustrated embodiments, the front surface 205 is shaped to correspond to the shape of a front surface 31 of the cover plate 30. For example, the front surface 205 of the insert piece is curved to follow the curved front surface 31 of the cover plate 30.

The insert piece 110 includes retention members 100 extending from opposed sides of the middle member 112. The retention members 100 have a front surface 210 which is set back from the front surface 205 of the middle member 112 of the insert piece 110 thereby forming a shoulder. When the insert member 110 is coupled to the cover plate 30 and strap 50, the retention members 100 are received by the shelves 90 of the strap 50 so that the retention members 100 are retained between a back side 33 of the cover plate 30 and the strap 50. Specifically, an aperture edge 35 which defines the plate aperture 68 traps the retention members 100 of the insert piece 110 into opposed shelves 90 of the strap 50. As shown in FIGS. 34 and 35, a back side 36 of the aperture edge 35 abuts the front surface 210 of the retention members 100. When the cover plate 30 and strap 50 are coupled to the outlet box 20 as shown in FIGS. 4 and 5, the insert pieces 40-42 cannot be removed from the assembly without first removing the cover plate 30. The cover plate 30 prevents the removal of the insert pieces. The insert pieces, in turn, prevent the modules 60 and 62 from being removed from the assembly.

The insert pieces may also include tabs 102 extending from the rear surface 206 of the middle member 112. The insert tabs 102 are sized to be received by the tab slots 92 defined by the strap 50. The tabs 102 may be configured to wedge or friction fit into tab slots 92 so that the frictional force of the tabs 102 in the tab slots 92 will hold the insert pieces in a mating arrangement with strap 50 during assembly.

Insert tabs 102 assist in aligning the insert piece relative to the strap 50 and improve the ease of assembly.

5 The retention members 100 may also include extensions 211. As shown in FIG. 35, when the insert members are assembled with the strap 50 the extensions 211 extend beyond side edges 213 of the strap 50. The extension members 211 provide a surface for easy removal of the insert pieces from the strap 50.

As shown in FIG. 36, the insert pieces may also include an orientation tab 240. Orientation tab 240 extends from the rear surface 206 of the insert piece 130. Insert piece 130 is an s-video insert piece which includes a slightly off-center connector aperture 133. In order to assist in properly orienting the insert piece 130, the orientation tab 240 has been included. The orientation tab 240 is received by the connector module 260 above the push tab 64 and adjacent module portion 261. If a user attempted to insert the insert piece up-side-down, the orientation tab 240 would be blocked by module portion 262.

15 The insert pieces of the present invention may be used to designate the various connectors and connector jacks in a multimedia outlet and may be swapped in and out of an outlet assembly as desired, but only upon prior removal of the cover plate 30. In this way the insert pieces also prevent the snap-fit connector modules from being removed from the outlet without first removing the cover plate.

20 Since many embodiments of the invention can be made without departing from the spirit and scope of the invention, the invention resides in the claims hereinafter appended.